3. The apparatus of claim 1, wherein the acoustic model is a Bidirectional Recurrent Deep Neural Network (BRDNN) acoustic model.

4. The apparatus of claim 1,

wherein the preprocessor extracts the select frames according to one or more predetermined intervals to respectively intermittently extract frames from the first speech and generates the second speech using the extracted select frames so as be connected speech, and

wherein the score calculator collectively provides the extracted select frames to the acoustic model as the connected speech in the second speech.

5. The apparatus of claim 4, further comprising a processor including the preprocessor and the score calculator, and configured to:

extract the select frames and generate the second speech;

calculate the acoustic score of the second speech;

calculate the acoustic score of the frames other than the select frames based on the calculated acoustic score of the second speech; and

recognize the first speech based on calculated acoustic scores of frames of the second speech, provided by the acoustic model, and calculated acoustic scores of the frames other than the select frames.

6. The apparatus of claim 5, wherein the processor is further configured to generate the acoustic model by training the acoustic model using a set of first non-temporally contiguous speech frames, extracted by the processor from temporally contiguous speech frames of training data.

7. The apparatus of claim 6, wherein the processor is further configured to generate the acoustic model by further training the acoustic model using a set of second non-temporally contiguous speech frames, extracted by the processor from the temporally contiguous speech frames of the training data, the set of first non-temporally contiguous speech frames having one or more different speech frames from the set of second non-temporally contiguous speech frames.

8. The apparatus of claim 1, wherein the preprocessor extracts the select frames from all of the frames of the first speech according to a predetermined uniform interval, divides all of the frames of the first speech into two or more groupings and extracts one or more frames from each grouping, or extracts the select frames from all of the frames of the first speech according to an interval that is based on determined signal strengths of frames of the first speech.

9. The apparatus of claim 8, wherein the preprocessor extracts the select frames according to m*K+i and from an N number of all of the frames of the first speech, wherein i is any integer according to $1 \le i \le K$, and K is any integer according to $2 \le K \le N$, while m is made to be one or more integers according to $i \le m*K+i \le N$, to extract respective m*K+i-th frames of the first speech.

10. The apparatus of claim 9, wherein, with K and i being maintained, the second speech is generated by extracting the respective m*K+i-th frames of the first speech, as m is incremented between 0 and K−1.

11. The apparatus of claim 1, wherein the score calculator uses acoustic scores of frames of the second speech, calculated by the acoustic model, as determined acoustic scores of respective frames of the first speech that correspond to the frames of the second speech, and derives an acoustic score of one of the frames other than the select frames, as an adjacent frame and being adjacent to one or more of the respective frames of the first speech, based on one or more acoustic scores of the frames of the second speech and/or one or more of determined acoustic scores of the respective frames of the first speech.

12. The apparatus of claim 11, wherein based on a determined temporal distance between the adjacent frame and two frames of first speech, of the extracted select frames, which are temporally on both sides of the adjacent frame, the score calculator uses, as the acoustic score of the adjacent frame, a determined acoustic score of either one of the two frames as the acoustic score of the adjacent frame or a calculated acoustic score of either one of two corresponding frames of the second speech.

13. The apparatus of claim 11, wherein the score calculator uses, as the acoustic score of the adjacent frame, a statistical value based on determined acoustic scores of two frames of the first speech, of the extracted select frames, which are temporally on both sides of the adjacent frame, or based on calculated acoustic scores of two frames of the second speech corresponding to the two frames of the first speech, or

the score calculator uses, as the acoustic score of the adjacent frame, a statistical value obtained by applying a weighted value to each determined acoustic score of the two frames of the first speech, or to each determined acoustic score of the two frames of the second speech, based on respectively determined temporal distances between the adjacent frame and the two frames of the first speech.

14. The apparatus of claim 1, wherein the acoustic model is trained by using one or more second training speeches respectively generated based on frame sets differently extracted from a same first training speech.

15. The apparatus of claim 14, wherein the preprocessor is configured to:

extract the frame sets from the first training speech;

generate the one or more second training speeches by respectively using the extracted frame sets; and

train the acoustic model by using the generated one or more second training speeches.

16. A speech recognition method, the method comprising:

receiving input of first speech to be recognized;

extracting some frames from all frames of the first speech;

generating a second speech by using the extracted frames;

calculating an acoustic score of the second speech by using a Deep Neural Network (DNN)-based acoustic model; and

calculating an acoustic score of the first speech based on the calculated acoustic score of the second speech.

17. The method of claim 16, wherein the acoustic model is a Bidirectional Recurrent Deep Neural Network (BRDNN) acoustic model.

18. The method of claim 16, wherein the extracting of some frames comprises extracting select frames from all frames of the first speech according to a predetermined uniform interval, dividing all of the frames of the first speech into two or more groupings and extracting one or more select frames from each of the groupings, or extracting select frames according to an interval that is based on determined signal strengths of frames of the first speech.

19. The method of claim 16, wherein the calculating of the acoustic score of the first speech comprises using two acoustic scores of frames of the second speech as acoustic scores of two frames of the first speech that correspond to